

# Baker's Generalization in a derivational theory of binding

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## 1. Introduction

Baker (1996:49) observes that polysynthetic languages lack noun phrase anaphors. Instead, reflexivity is expressed by morphology on the verb, as illustrated in (1) for Mohawk:

- (1) Sak ra-[a]tate-núhwe'-s (Mohawk)  
Sak MASC.SG.SU-REFL-like-HAB  
'Sak likes himself.' (Baker 1996:50)

Polysynthetic languages as defined by Baker (1996) are characterized by a) full (subject and object) agreement and b) robust noun incorporation.

Baker's generalization appears to be by and large correct (as we will see, there is a potential counter-example from San Miguel Chimalapa Zoque). What we will be concerned with here is the explanation for the generalization. As discussed below, Baker's explanation of the absence of noun phrase anaphors in polysynthetic languages relies crucially on the Binding Theory as developed in Chomsky (1981, 1982). I argue in this paper that that theory is critically misguided in that it takes reflexivity to be about the licensing of certain classes of pronouns. Both theory internal and empirical considerations suggest that reflexivity is instead to be characterized as a subject-predicate dependency, which may be expressed by predicate internal elements like pronouns, but equally well, as in polysynthetic languages, by the head of the predicate, the verb. Languages differ, then, as to how dependency relations are morphologically expressed, and I would like to propose that Baker's Generalization follows from a consistent choice made by polysynthetic languages to realize dependency on the head of the dependent category (dependent head-marking in the terminology of Zwart 2006a).

The article has the following contents. In section 2, the argument is made that binding is not about pronoun licensing but about subject-predicate dependency. This allows us to solve some problems connected with the earlier derivational theory of binding of Zwart (2002). Section 3 discusses Baker's Generalization, including its explanation in terms of the classical binding theory, and the problems associated with that. Section 4 proposes an alternative explanation, based on the derivational binding theory discussed in section 2. Finally, section 5 discusses some further aspects of such a derivational binding theory.

## 2. Binding theory from a derivational point of view

### 2.1 Morphological preliminaries

Ever since the publication of Chomsky (1980), inquiry into binding and reflexivity has been directed at the configurations in which anaphors, pronouns, and R-expressions can be felicitously used. This soon led to the formulation of the binding theory principles (2), which are to a large extent empirically adequate.

- (2) Binding Theory
- A. An anaphor is locally bound
  - B. A pronoun is locally free
  - C. An R-expression is free

where  $\alpha$  binds  $\beta$  if  $\alpha$  c-commands  $\beta$  and  $\alpha$  and  $\beta$  are coindexed.

This approach to binding presupposes that anaphors, pronouns, and R-expressions are distinct deep structure elements, characterized by inherent features which require some kind of licensing. From this perspective it seemed puzzling that some languages (such as Frisian, cf. Reuland 2001: 478) fail to make a morphological distinction between anaphors and pronouns. In such cases, the bound or free interpretation of the pronominal element cannot be a function of its inherent feature make-up: there must be an additional process of feature assignment ('binding') which determines how the pronominal element is interpreted.

This suggests a different perspective on binding altogether. Rather than considering anaphors and pronouns to be primitives with their own feature make-up, we may think of them as different morphological realizations of a single semi-referential element PRON, which enters the syntax in an underspecified state (Zwart 2002). The binding mechanism will then impart features (perhaps indices) onto the pronominal element which leads to a certain morphological realization at PF (this presupposes, crucially, that morphological paradigms are accessed only after syntax, as part of a spell-out procedure; cf. Halle and Marantz 1993).

This view on the morphology of pronominal elements was at the core of an earlier article (Zwart 2002), which explores a derivational approach to binding.

## 2.2 A derivational binding theory

In my earlier article on aspects of a derivational theory of binding (2002), I focused on the exact configuration in which an antecedent is allowed to impart features onto a semi-referential element. Keeping to minimalist assumptions, and adapting a proposal by Kayne (2002), I proposed that antecedent-dependent relations are established only between elements that are merged together in the syntactic derivation. This led to an analysis of (3) as (4), where *John* is merged with PRON, yielding a constituent XP, which is merged with the verb, after which *John* is extracted from XP to be remerged as the external argument of the verb.

- (3) John loves himself

- (4)  $[_{VP} \text{ — } [_{VP} \text{ loves } [_{XP} \text{ John PRON } ] ] ]$
- 

The thinking was that as a result of their merging together, PRON would automatically acquire a feature [bound], which plays a role in the pronominal paradigms of languages making a distinction between anaphors and pronouns. In languages like Frisian, the feature would not be morphologically distinctive, leading to identical spell-outs of bound and free pronominals.

While this analysis successfully accounted for a number of properties of anaphor binding (having to do with uniqueness, locality, and the c-command requirement, see Zwart 2002), it also raised a number of problems which now lead me to revise it considerably.

The problems are illustrated by the examples in (5):

(5) a. John was [ arrested — ] by himself

b. John seems to himself [ — to be an idiot ]

In these examples, the dashes indicate the positions in which current theories of argument structure would lead us to expect *John* to be generated. As these positions are hierarchically lower than the position of *himself* (=PRON), an analysis where *John* is merged with PRON before it is remerged in its theta position is not available.

In Zwart (2002) I tried to counter these problems by questioning the presumed base position of *John* in (5a) and (5b). But since then, other considerations have come up which suggest that such tinkering is unnecessary. These considerations (of a typological nature) lead me to reject the idea that pronominals have a special status in the domain of binding and reflexivity. They are instead auxiliary elements used to morphologically realize the feature [bound] on a predicate (partly in the spirit of Reinhart & Reuland 1993).

## 2.3 Reflexivity as dependency marking

### 2.3.1 Subject-predicate dependency

In pursuing a derivational account of agreement and case (i.e. an account that takes case and agreement morphology to be a function of the structure building operation Merge), Zwart (2006b) proposes that agreement is not mediated by functional heads, as in the probe-goal approach of Chomsky (2001), but is a reflection of a direct dependency between a subject and its sister (here to be called ‘predicate’). This is suggested by the observation that agreement may be realized in a number of different ways: on a verb (6a) or auxiliary (6b), on a clitic attached to (7a) or separate from (7b) the verb, sometimes even on the object (8), and sometimes on a range of elements (9).

(6) a. John read-s poetry

b. John ha-s read *War and Peace*

(7) a. u bru laʔ pən-yəp u u psñ (Bhoi Khasi)  
DET man PAST cause-die 3SG.MASC DET snake  
‘The man killed a snake.’ (Nagaraja 1997: 352)

b. u bru pīnyap psəñ u (Nongtung Khasi)  
DET man cause-die snake 3SG.MASC  
‘The man killed a snake.’ (Nagaraja 1997: 355)

(8) a. Dios tupo'-n naxo-xt'e'wal wako' (Coahuilteco)  
god DEM-1AGRS 1PL:SU-annoy CAUS  
‘We annoyed god.’ (Troike 1981: 663)

b. Dios tupo'-m xa-ka'wa xo e ?  
god DEM-2AGRS 2SU-love AUX Q  
‘Do you love god?’ (Troike 1981: 663)

- (9) Juma **a-li-kuwa** **a-ngali** **a-ki-fanya** kazi (Swahili)  
 Juma<sub>1</sub> SU<sub>1</sub>-PAST-be SU<sub>1</sub>-still SU<sub>1</sub>-PROG-do work (1 = noun class)  
 ‘Juma was still working.’ (Carstens 2003: 395)

What unites the various realizations of agreement is that the elements on which it is spelled out are all terms of the predicate. Hence the idea that agreement is a morphological realization of features which the predicate receives as an automatic result of its being merged with the subject. In effect, the feature assignment procedure may be specified as feature sharing (as in Koster 1987:8), and the process is similar to the one proposed in Kayne (2002) and Zwart (2002) for the relation between a pronominal element and its antecedent (cf. (4)).

Zwart (2006c) proposes that objective case is to be understood as an alternative realization of the subject-predicate dependency: whereas agreement typically targets a verb inside the predicate, objective case typically affects a predicate internal noun phrase. One reason for thinking that objective case has this status is that it cannot in all cases be described as expressing a dependency w.r.t. the verb. This can be seen most clearly in scrambling constructions in e.g. Dutch, where the object is not adjacent to the verb, and may even appear in the domain of a higher unaccusative verb (Zwart 2001):

- (10) ..dat ze **hem** niet schijn-t te ken-nen (Dutch)  
 that 3SG.FEM:NOM 3SG.MASC:ACC not seem-3SG to know-INF  
 ‘..that she doesn’t seem to know him.’

There is some reason to believe, as Zwart (2006c) argues, that Welsh Soft Mutation, taken to be a phonological realization of case (as in Roberts 1997), is also an expression of the subject-predicate dependency (i.e. an XP-XP relation as in Borsley and Talleman 1996), which for phonological reasons can only be realized at the edge of the dependent category. The phenomenon is illustrated in (11b) (SM = soft mutation):

- (11) a. roedd y ddynes yn prynu **beic** / \**feic* (Welsh)  
 was the woman PROG buy:INF bike / <sub>SM</sub>bike  
 ‘The woman was buying a bike.’  
 b. prynodd y ddynes **feic** / \**beic*  
 bought the woman <sub>SM</sub>bike / bike  
 ‘The woman bought a bike.’

The fact that mutation takes place only when the verb is removed (cf. its absence in (11a)) suggests that objective case does not express dependency w.r.t. the verb, but with respect to the subject (or some other phrasal category, as in Borsley and Talleman 1996). Another reason for viewing structural case in this way is that the subject case is really the absence of case-marking (Jakobson 1935, Zwart 1988), so that it cannot be seen as feature marking of the subject by the predicate, kind of the converse of subject-predicate agreement.

If this is the correct way of looking at case and agreement, the picture that emerges is that these two phenomena both mark the predicate as a dependent of the subject. This then raises the question of whether that same dependency is reflected in other morphosyntactic phenomena as well. In this context, I would like to suggest that reflexivity is another subject-predicate dependency marking device.

### 2.3.2 Reflexivity as subject-predicate dependency

The suggestion would now be that reflexivity is a special case of subject-predicate dependency, marking the predicate as oriented towards the subject, and that anaphors are used in some languages as designated elements for spelling out the dependency. Like with agreement, this approach is supported by the observation that the dependency may be expressed in a number of ways, not all of them involving pronominals.

Baker (1996) shows that a circumscribed set of languages, which he calls polysynthetic, do not have noun phrase anaphors. Instead, the languages in question mark the verb as reflexive. In fact, the range of elements used to express reflexivity is quite large, as the surveys of Geniušienė (1987) and Schladt (2000) show. Many languages express reflexivity using body part noun phrases (12), which may or may not feature a pronominal possessor; also attested is the use of subject oriented secondary predicates or *self*-elements to mark reflexivity (13); a further category employs nonargument clitics or reflexives (14); other devices involve the use of adverbs (15), intensifiers (16), special auxiliaries (17), locatives (18), and full copies of the antecedent (19). This is in addition to the use of verbal morphology illustrated in (1), which is in no way restricted to polysynthetic languages.

- (12) a. Nye rerem **mōgōn** (Bari)  
 he kill body  
 ‘He kills himself.’ (Spagnolo 1933:139f in Schladt 2000)
- b. en tooñ-ii **koye men** (Toucouleur)  
 we harm-ASP heads our  
 ‘We have harmed ourselves.’ (Sylla 1993:149)
- (13) a. Irail **pein** duhp-irail (Ponapean)  
 3PL self bathe-3PL  
 ‘They bathed themselves.’ [lit. ‘They themselves bathed them’] (Rehg 1981:301)
- b. Alfijadi-z **wič** güzgüd-a akwa-zwa (Lezgian)  
 Alfija-DAT self mirror-INESS see-IMPF  
 ‘Alija sees herself in the mirror.’ (Haspelmath 1993:185)
- (14) a. Das Buch liest **sich** gut (German)  
 the book reads SE good  
 ‘The book reads well.’
- b. Jon-as at-**si**-vedė vaik-ą į mokykl-ą (Lithuanian)  
 Jonas-NOM PERF-REFL-brought child-ACC to school-ACC  
 ‘Jonas brought the child with him to school.’ (Geniušienė 1987:135)
- (15) Atakusa a-nō kama nia sapa **ko-pa-so-ma** (Sanuma)  
 gun 3SG-INST 3SG shoot reverse:DIR return-EXT-FOC-COMPL  
 ‘He shot himself with a gun.’ (Borgman 1991:43 in Schladt 2000)
- (16) ʔut **gɛg-ɛ-ni** qɛč (Zay)  
 3SG.MASC REFL-ACC-POSS:3SG.MASC kill:PERF:3SG.MASC  
 ‘He killed himself.’ (Meyer 2005:84)



the subject: if the subject is generated in its theta-position, it can no longer be merged with the pronominal, and vice versa. But now we no longer assume that the subject must be merged with the pronominal directly for a reflexive reading to result. In fact, the antecedent is never merged with a pronominal, which merely serves to morphologically realize a higher order dependency between the subject and its predicate. In (5a), the relevant dependency is between *John* and *was arrested by himself*; in (5b), between *John* and *seems to himself to be an idiot*. In both cases, the pronominal realized as *himself* is part of the predicate and may be used to spell out reflexivity.

As mentioned above, the analysis is reminiscent of that of Reinhart & Reuland (1993), in stressing the notion of reflexivity. However, the Reinhart & Reuland analysis stays much closer to the classical Binding Theory in that it seeks to rephrase the principles in (2) in a variety of conditions directed at explaining the distribution of pronominals and R-expressions (see Safir 2004 for discussion). In addition, their analysis takes predication to be a central concept, whereas on our view predication is just a subcase of sisterhood, the only configuration relevant to dependency.

Importantly, if a language uses pronouns to express reflexivity, and has in its morphological inventory an anaphor as the spell-out of PRON contained in a dependent-marked (self-oriented) phrase, any alternative realization of PRON will not arise in a reflexive construction. In other words, (21) is ungrammatical as a reflexive construction, not because of some violation of a principle like Principle B (cf. (2b)) governing the distribution of *him*, but simply because in the intended reflexive reading of the predicate *loves PRON*, PRON will be realized as *himself*, not as *him*.

(21) John loves him

It follows that Principle B can be dispensed with, as can in fact principles A and C (see section 5 for further discussion).

## 2.4 Conclusion

In this section I have argued for a derivational theory of binding which describes reflexivity as a subcase of subject-predicate dependency. When a subject is merged to a predicate, the predicate is automatically marked as a dependent of the subject. I have argued elsewhere that subject-verb agreement is just the realization of the subject-predicate dependency on a term of the predicate, and that objective case on a predicate internal noun phrase is an alternative realization of the same dependency. What I propose here is that reflexivity is a more specific instance of the subject-predicate dependency, such that the predicate may be marked with the feature [bound] upon merger with the subject. In languages like English, the feature [bound] is then realized on the object via anaphoric morphology.

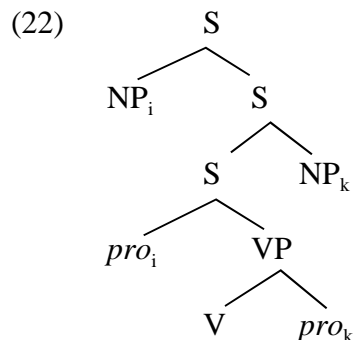
Importantly, in this approach there is no need for the principles of the binding theory (2), as the perspective shifts from licensing conditions on particular types of noun phrases (anaphors, pronouns and R-expressions) to parametric variation in the morphological realization of the feature [bound] on a term of the predicate. This shift is made possible by the idea that pronouns enter the derivation in underspecified state, and are spelled out on the basis of features acquired in the course of the derivation.

### 3. Baker's Generalization

#### 3.1 Baker's explanation

The observation that polysynthetic languages lack noun phrase anaphors is explained by Baker (1996) as follows.

First, polysynthetic languages are characterized by the circumstance that noun phrases are adjuncts, adjoined to the clause (S in (22)), and coindexed with empty pronouns (*pro* in (22)) occupying clause internal argument positions:



Second, Baker adopts the standard definition of binding as involving coindexing under c-command. Hence, if the subject ( $NP_i$  in (22)) were to bind the object ( $NP_k$ ), both elements would be coindexed (i.e.  $i = k$ ), and so would both clause internal empty pronouns. As a result, we end up with a pronoun coindexed with a local antecedent, in violation of Principle B of the Binding Theory (cf. (2b)).

It follows that polysynthetic languages cannot make use of anaphoric objects to express reflexivity, hence the recourse to the alternative strategy involving reflexive morphology on the verb.

#### 3.2 The problem

If the approach to binding and reflexivity of section 2 is correct, we can dispense with licensing conditions on pronouns such as Principle B. In (21), repeated here, *him* cannot be interpreted as referring to the same individual as *John*, not because *him* cannot be bound, but because if *loves PRON* is to be interpreted as reflexive, *PRON* happens to be realized as *himself* in English.

(21) John loves him

If Principle B is not part of the grammar, Baker's own explanation of Baker's Generalization is not properly founded. I believe Baker's Generalization to be by and large correct (see section 4 for a potential counterexample), but its explanation should not be sought in the principles of the classical Binding Theory.

### 4. Baker's Generalization as a dependency marking preference

Within the derivational approach to binding sketched in section 2, an alternative explanation for Baker's Generalization is readily suggested.

We have assumed that dependency is a function of merge, such that when  $\alpha$  merges to  $\delta$ ,  $\delta$



is automatically turned into the dependent of  $\alpha$ . This much, we hope, is not subject to language variation. The locus of parametric variation, I presume, lies in the component of dependency *realization*. The dependent element  $\delta$  needs to rely on one or more of its terms for the morphological realization of the dependency.

It has been known for a long time that languages differ in how they express syntactic dependencies in their morphology (see in particular Nichols 1986). As discussed in Zwart (2006a), a careful consideration of dependency marking phenomena suggests that languages differ not so much in whether they mark the head or the dependent category (as proposed by Nichols 1986, assuming dependency to involve a relation between a head and a dependent phrase), but in whether they mark the dependent category's head or not. For example, a verb agreeing with the subject is scored as an instance of head-marking in the approach of Nichols (1986), but on our approach, where the predicate is a dependent of the subject, it would be characterized as morphological marking of the head of the dependent ('dependent head-marking'; see Zwart 2006a for more discussion).

As illustrated extensively in Nichols (1986) and seconded by the observations in Baker (1996), polysynthetic languages show an overwhelming preference for head-marking in this sense. If reflexivity is a particular instantiation of the more general subject-predicate dependency, we in fact predict that polysynthetic languages will mark reflexivity on the head of the predicate, the verb.

This approach to Baker's Generalization differs from Baker's own in the predictions it makes. If NP-anaphors in polysynthetic languages yield a violation of Principle B, and Principle B holds, we expect not a single polysynthetic language to feature anaphoric objects. On the other hand, if Baker's Generalization is explained as the effect of a tendency for polysynthetic languages to mark dependency on the head of the dependent category, we do not predict the total absence of NP-anaphors in polysynthetic languages (although we do predict them to be rare).

Baker himself discusses the case of Cukchee, polysynthetic according to Baker's criteria, which features a reflexive noun *činit* 'self' (Baker 1996:51f). However, as Baker shows, the distribution of *činit* is as expected on Baker's assumptions, as it cannot appear as the absolutive object. It can appear on its own as a benefactive adjunct-like noun phrase (24a) or as the possessor in a body part object noun phrase (24b):

- (24) a.  $\exists$ tləg-e **čenet-etə** qoraŋə tem-nen (Chukchee)  
 father-ERG self-DAT reindeer slaughter-3SG.SU/3SG.OB  
 'The father slaughtered a reindeer for himself.' (Nedjalkov 1997:196, 201)
- b.  $\exists$ tləg-e **činit-kin uwik** wiriŋe-rkə-nin  
 father-ERG self-POSS body defend-PRES-3SG.SU/3SG.OB  
 'The father defends himself.' (Nedjalkov 1997:190, 201)

On Baker's analysis, the structure of (22) applies to both constructions in (24), but the object *pro* is never coindexed with *činit*: in (24a) coindexing does not take place because the benefactive noun phrase is not a regular object, and in (24b) coindexing takes place with the entire body part noun phrase *činitkin uwik* 'self's body'. From our perspective, these facts are interesting in suggesting that the typical polysynthetic pattern of marking reflexivity on the verb is no more than a strong tendency.

More striking still is the case of San Miguel Chimalapa Zoque (Johnson 2000), which does seem to feature a regular anaphoric noun phrase *-win*:

- (25) muk-wə      ʔəy-golpya-cək-wə      ʔəy-win      (San Miguel Chimalapa Zoque)  
 fall-COMPL      3ERG-hit-do-COMPL      3ERG-REFL  
 ‘He falls and he hurts himself.’ (Johnson 2000:107)

The ergative prefix is the regular possessive marker (cf. (26a)), making the San Miguel Chimalapa Zoque reflexive marker look much like the common colloquial Dutch reflexive marker in (26b).

- (26) a. ʔəy      mačete      (San Miguel Chimalapa Zoque)  
 3ERG      machete  
 ‘his machete’ (Johnson 2000:264)
- b. Jan      kent      z’n      eigen      (Colloquial Dutch)  
 John      knows      his      own  
 ‘John knows himself.’

Importantly, whereas Dutch *z’n eigen* may be analyzed like the Chukchee body part noun phrase, with an anaphoric possessor not necessarily coindexed with the noun phrase as a whole, this analysis does not seem to be available in the San Miguel Chimalapa Zoque example, where the possessive element is a bound morpheme.

The relevance of the San Miguel Chimalapa Zoque data is therefore decided by the question of whether the language counts as polysynthetic. Recall that polysynthetic languages on Baker’s definition display full (subject and object) agreement and robust noun incorporation.

As for agreement, Johnson (2000:122) notes that “transitive verbs are marked to agree with both subject and object, and intransitive verbs are marked to agree with the subject”. She also notes that “the agreement markers are clitics, in that they belong morphologically to the preceding word” (Johnson 2000:96). In addition, both subjects and objects can be crossreferenced by a plural marker suffixed to the verb (Johnson 2000:129). These features are illustrated in (27).

- (27) tey      miš-yak-kəš-ʔoy-tam-wə-ʔam      (San Miguel Chimalapa Zoque)  
 now      2>1-CAUS-eat-ANTIP-1/2PL-COMPL-NOW  
 ‘Now you fed us.’

As for noun incorporation, Baker (1996:19) considers noun incorporation ‘robust’ if a) it is reasonably productive, b) the noun root is fully integrated with the verb morphologically, c) the noun is referentially active in the discourse, and d) both the noun root and the verb can in principle be used independently. Johnson (2000:268) describes noun incorporation as “a highly productive process” in San Miguel Chimalapa Zoque. Criterion b) is relevant for head-final languages like Turkish where confusion may be caused by caseless/determinerless noun phrases preceding the verb; in San Miguel Chimalapa Zoque, transitive clauses with overt objects are predominantly SVO (Johnson 2000:384; cf. (28a)), and the incorporated nouns precede the verb stem, eliminating potential confusion (cf. 28b).

- (28) a. ʔəy-kəš-wə      bi      hon      (San Miguel Chimalapa Zoque)  
 3ERG-eat-COMPL      DEF      bird  
 ‘He ate the bird.’ (Johnson 2000:383)

- b. də-šək-wiš-tam-wə  
 1ABS-bean-uproot-1/2PL-COMPL  
 ‘We were uprooting bean plants.’ (Johnson 2000:268)

Criterion c) is often difficult to decide on the basis of the information available (Baker 1996:36 note 13), and the point is not explicitly addressed by Johnson (2000). She does note that the incorporated noun must be non-specific. This criterion is included by Baker to be able to eliminate potential cases of noun incorporation which in fact involve compounding. That the incorporation in San Miguel Chimalapa Zoque is different from compounding, however, is clear from the examples given by Johnson where the non-specific incorporated noun is associated with a stranded modifier or relativized adjective/clause:

- (29) a. də-yoteʔ-kom-wə                      ʔən-manak-ʔəytiʔ    (San Miguel Chimalapa Zoque)  
 1ABS-clothes-mend-COMPL    1ERG-child-POSS:3  
 ‘I mended my children’s clothes.’ (Johnson 2000:274)
- b. ∅            tək-cək-pa                      komiʔ-Vʔk  
 3ABS house-do-INCOMPL    big-REL  
 ‘He builds big houses.’ (Johnson 2000:272)

Criterion d) is included to eliminate languages where noun incorporation is a property of particular verbs. The situation in San Miguel Chimalapa Zoque is apparently different, in that noun incorporation is a function of the specificity of the noun phrase, not of the nature of the verb.

In all, it would appear that San Miguel Chimalapa Zoque features noun incorporation of the sort that allows us to qualify the language as polysynthetic. The fact that San Miguel Chimalapa Zoque employs noun phrase anaphors then confirms that Baker’s Generalization is at best a very strong tendency. This is predicted if the absence of noun phrase anaphors in polysynthetic languages reflects a tendency of polysynthetic languages to mark dependency on the head of the dependent category, but not if noun phrase anaphors in polysynthetic languages would incur a violation of Principle B of the Binding Theory.

## 5. Aspects of a theory of binding

### 5.1 Binding theory remains

In this section I would like to examine some consequences of the approach to binding and reflexivity discussed in section 2.

The core of the proposal is that pronouns are merged as underspecified categories, notated as PRON, which may acquire features in the course of the derivation, leading to a particular spell-out. In English, a PRON contained within a reflexive predicate is the designated element for expressing the reflexivity in its morphology, yielding a realization as *himself*.

But nothing said so far limits the distribution of elements like *himself* to the context of reflexive predicates. And in fact, other contexts exist, as illustrated in (30) and, I believe, (31).

(30) John himself presented the award

(31) John believes that [pictures of himself] will be on sale

Example (30) illustrates that in English, *himself* is also the morphological realization of an emphatic object PRON. On our approach, the principles of the Binding Theory need not be bended so as to account for cases like (30). While this is trivial for (30), I believe the reasoning also applies to (31), regarding which a failure to appreciate its status has led to considerable complications of the classical Binding Theory (e.g. Chomsky 1986). In other words, even though *himself* is the English realization of PRON contained in a reflexive predicate, it is not encumbent on the binding theory to account for the (full) distribution of *himself*.

Another consequence is that cases like (32) need no longer be seen as violations of the principles of the Binding Theory (cf. Evans 1980):

- (32) a. Of course you hate me. Everybody hates me. I hate me.  
b. Look, if everybody hates John, then surely John must hate John as well.

The relevant constructions *I hate me* and *John must hate John* are simply not (intended or presented as) reflexive. These constructions are important for disclosing the discourse conditions under which two identical real world entities are treated as distinct concepts. But given that these conditions are understood, since the items in question are not treated as identical, there is no self-orientation and the PRON in (32a) must be realized in its default form (*me* instead of *myself*). Likewise there is no offense of any kind in (32b) (cf. Demirdache 1997:74f for some pertinent discussion).

Principle C of the Binding Theory can be dispensed with altogether if R-expressions refer to unique concepts, so that they can never serve to spell-out PRONS. Thus, (33) is not interpreted as reflexive since *John* is not a possible morphological realization of PRON.

- (33) He likes John

Only when (33) is not interpreted as self-oriented can we get an interpretation where *he* and *John* represent the same real-world entity (e.g. in a context like (32b)). This is not a suspension of Principle C, but just the absence of reflexivity.

These kinds of facts are important for bringing home the point that there is no need for a checking or licensing procedure applying to the various types of (pro)nominals. In the absence of such procedures, there appears to be no need for indices. This entails that binding reduces to the more general notion of c-command, which reduces to sisterhood if Epstein (1999) is correct. We take sisterhood to be the configuration that can give rise to self-orientation, and combined with the language particular rules for PRON realization, that is all there is to 'binding'. We essentially end up with a binding theory without binding.

Where does that leave locality? Two cases need to be considered. First, pronouns need to be locally free (cf. (2)), but can be interpreted as bound in nonlocal contexts:

- (34) Every student thinks he is a genius

Here we may assume that a finite clause is a domain across which the relevant type of dependency cannot be morphologically expressed (possibly to be understood in connection with the phase theory of locality of Chomsky 2001). Even though *thinks he is a genius* is 'about' *every student*, and in that sense self-oriented, the embedded subject PRON will receive the default realization. I hypothesize that this has to do with constraints on realizing the [dependent] feature on terms of the dependent. The relevant structure of (34) is (35), with CP presenting a threshold below which features of the predicate cannot be morphologically expressed:

(35) [ [ every student ] [ <sub>PREDICATE</sub> thinks [ <sub>CP</sub> he is a genius ] ] ]

It follows that (34) is ambiguous between a bound and a free reading (where the students hold a belief about a third party). The bound reading is not prevented because the quantified subject evokes a range of statements of the type *student x thinks he is a genius*, where *he* can be taken to accidentally corefer with *student x*.

Second, anaphors need to be locally bound (when they are not ‘long-distance anaphors’):

- (36) a. \* John thinks Mary likes himself  
 b. \* John thinks herself/himself is a genius

This too follows if the relevant dependency cannot be realized on a term of the dependent element which is inside a CP. In these situations, PRON receives the default realization of a pronoun (*he/him*).

Transparent clauses are expected to behave differently. This can be seen in English ECM-constructions:

- (37) a. John/every student believes [ himself to be a genius ]  
 b. John/every student believes [ him to be a genius ]

The bracketed constituent is a nonfinite clause of a type which is known to yield transparency in Germanic languages (e.g. A-movement in Continental West-Germanic). Here the feature [dependent] may be realized via the embedded subject PRON and spell-out as an anaphor results. Default realization as a pronoun then indicates that no reflexivity was intended, accounting for the interpretation of (37b).

Locality conditions, then, are conditions on feature realization. A more comprehensive discussion of the conditions on feature realization must await another occasion. A viable hypothesis appears to be that languages differ as to whether they realize features on the head of the dependent category or not. In this domain we expect languages to vary, and it is this instance of parametric variation which I believe is relevant to Baker’s Generalization, as discussed above. Whether locality conditions on the expression of dependency are similar parametrized is a question in need of further study.

## 5.2 Self-orientation

A crucial question not addressed so far is: what makes a predicate reflexive? On our approach, a predicate is not reflexive by virtue of its containing a reflexive-marked element (as in Reinhart & Reuland 1993), but the other way around: reflexivity of the predicate (often) requires morphological realization of the feature [bound].

I would like to suggest that the feature [bound] (reflexivity) is an emerging property of the derivation, a function of the operation merge which we assumed yields an asymmetric sister pair automatically. Dependency is a linguistic interpretation of asymmetry, and the feature [dependent] is likewise a property acquired by a constituent as a function of merge. The feature [dependent] therefore systematically violates Chomsky’s inclusiveness condition (Chomsky 1995:228). Likewise, [bound], a specific interpretation of [dependent] is a feature that emerges in the course of the derivation, instead of being imported by a member of the numeration. (An alternative respecting the inclusiveness condition would involve merger of a functional element R[eflexive] triggering reflexive marking on a head or non-head of its sister, but I see no need to pursue that possibility here.)

What does it mean for a construction to be reflexive? In general, reflexive constructions appear to involve a subject which is immediately affected by the action expressed by the predicate. Let us take that to be the core case of reflexivity, i.e. the core property of the feature [bound]. Suppose the feature [bound] is assigned to the predicate upon merger of the subject. Then, arguably, the feature will remain vacuous unless the predicate has some property which makes reflexive interpretation possible. In the core cases, this property entails that the predicate a) is detransitivized (via verbal morphology or reflexive cliticization), allowing an interpretation where the agent = the patient, b) contains a variable element (PRON, a body part noun phrase, a copy, etc.), or c) contains some other device signaling subject orientation (an adverb, a secondary predicate, a focus marker, etc.). These properties of the predicate may in fact prime the interpretation of the feature [dependent] as [bound], so that we may not need to stipulate that the feature [bound] is assigned optionally.

Additional cases of reflexivity involve a subject indirectly affected by the predicate, for instance where the agent is a beneficiary or is in some other way involved. This is a characteristic of those reflexive constructions where the agent is not the patient, such as Spanish (38) and the examples given earlier as involving nonthematic reflexives (cf. (14)).

- (38) Juan se construyó una casa (Spanish)  
 John REFL built a house  
 ‘John built himself a house.’

Clearly, self-orientation can take on many guises, going beyond the common identification of the patient/theme with the agent. Languages which mark self-orientation on the object have limited ways of expressing self-orientation morphologically when the patient/theme is different from the agent. Languages marking self-orientation on the verb, however, can express a wider range of self-oriented events, not excluding transitivity, as in (14b), repeated here as (39).

- (39) Jon-as at-si-vedė vaik-ą į mokykl-ą (Lithuanian)  
 Jonas-NOM PERF-REFL-brought child-ACC to school-ACC  
 ‘Jonas brought the child with him to school.’ (Geniušienė 1987:135)

As Geniušienė states, the reflexive marker on the verb implies that the action is performed for the agent’s own sake. The Ancient Greek mediopassive, illustrated in (40b), is arguably in the same class of self-oriented constructions where the subject is indirectly affected by the action expressed in the predicate.

- (40) a. lu-ō (Ancient Greek)  
 untie-THV:1SG:ACT  
 ‘I untie.’  
 b. lu-o-mai  
 untie-THV-1SG:MED  
 ‘I untie for myself.’

Likewise, the German middle construction (41), featuring a non-argument reflexive *sich*, may be analyzed as involving a subject-oriented predicate, leading to the interpretation that the object of reading is the book, without having to assume that *das Buch* is actually raised:

- (41) Das Buch lies-t sich gut (German)

the book read-3SG REFL well  
'The book reads well.'

On this view, the German middle construction is an unergative construction (cf. Ackema & Schoorlemmer 1995) with a causative interpretation 'This book makes the reading good' (see Condoravdi 1989 for the idea that the adverb predicates over the event, and Zwart 1998 for more discussion of this approach to middle constructions).

Finally, we may ask the question whether self-orientation/reflexivity is restricted to subject-predicate pairs or not. If reflexivity is a subcase of a more general dependency which ensues each time two elements are merged, we may expect to find it all over the place. While the system contemplated here is not designed to exclude this, we may assume a further condition to hold, namely that the feature [dependent] can only be interpreted as [bound] if the dependent category meets certain requirements. Presumably, these requirements would have to make reference to the potential for the dependent category to be interpreted as referring to an event or a state of affairs. In other words, the dependent category must be of the type that can meaningfully be combined with a subject (in a broad sense). This now includes cases of double object constructions, where the direct object is bound by the indirect object, if Kayne (1984) is correct in identifying the indirect object as the subject of a small clause. It also includes cases like Dutch (42a), where the anaphor is bound by an implicit subject, and correctly excludes (42b) which minimally differs from (42a) in not involving an implicit subject (cf. Zwart 1989):

- (42) a. een bewonderaar van zichzelf (Dutch)  
a admirer of REFL  
'a person who admires himself'
- b. \* een fiets van zichzelf  
a bike of REFL

While the precise identification of the type of categories that can meaningfully carry a feature [bound] awaits further study, I see at this point no reason to restrict the assignment of the feature [bound] to the particular context of subject-predicate pairs.

## 6. Conclusion

In this article I have argued that Baker's Generalization, stating that polysynthetic languages lack noun phrase anaphors, reflects a preference of polysynthetic languages to express dependency on the head of the dependent category. I argued that in reflexive constructions, reflexivity is a special interpretation of a general dependency relation holding between the subject and the predicate. The head of the predicate being the verb, we expect polysynthetic languages to express reflexivity on the verb. This ties in with the more general observation that polysynthetic languages are head-marking languages.

The proposal is cast within a theory of binding and reflexivity which crucially assumes that binding is a sisterhood dependency, and that anaphors in languages like English are not themselves participants in a binding relation. Instead, anaphors are non-head terms of the predicate which languages like English employ to mark the dependency of the predicate. This approach assumes that all pronouns enter the derivation in an underspecified state (PRON) and receive a morphological realization (as part of the spell-out procedure) based on features acquired in the course of the derivation.

The proposal explains Baker's Generalization not as a law, but as a very strong tendency. I have argued that at least one counter-example to the tendency can be found in the case of San Miguel Chimalapa Zoque.

Finally, I have discussed some further aspects of the derivational approach to binding contemplated here. The most important of those seems to me that the theory of binding should no longer be concerned with the conditions under which anaphors, pronouns and R-expressions can be felicitously used. Anaphors and pronouns are just morphological realizations of PRON in  $\pm$ bound predicates, R-expressions are not. This approach allows us to generalize over a range of binding related phenomena not involving pronouns, taking these to be alternative realizations of the same feature [bound] carried by the predicate.

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